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MONTANA STATE DEPARTMENT OF HEALTH
Communicable Disease Notes and Comments
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MORE ON TICK-BORNE DISEASES

There are five diseases associated with ticks in the United States--Rocky Mountain Spotted Fever, Colorado Tick Fever, Tularemia, tick paralysis, and Relapsing Fever (tick-borne or endemic variety). The first four diseases have all been recognized and documented in Montana; relapsing fever may occur, but no confirmed cases have ever been recognized.

RMSF still is perhaps the best known and most widely recognized disease associated with ticks. The vaccine is not recommended for wide-spread, general use for several reasons. Immunization requires a primary series of 2-3 doses, followed by an annual booster; all may be associated with local and sometimes systemic reactions. Not all ticks are infected, nor are areas uniformly infested with infected ticks. The annual incidence of RMSF over the last decade is greatly reduced from earlier decades, perhaps due to a diminution of reservoir animals, and thus the rate of infection is probably comparably reduced. Finally the vaccine does not prevent the other diseases transmitted by ticks. Persons continually in the field, such as lumbermen, wildlife workers, etc., probably would be at sufficiently increased risk to warrant immunization. Although cases of RMSF have occurred in vaccinated persons, there seems to be little doubt that immunization greatly reduces the fatality rate.

Colorado Tick Fever (CTF) is an acute viral dengue-like febrile illness with an incubation period of around 4 days. The illness usually begins with a sudden onset of fever, chills, malaise, headache, and generalized muscle aches, lasts about 2-3 days, subsides for a couple of days, and recrudesces. Single or triple attacks occur occasionally; complicating encephalitis or hemorrhagic tendencies occur rarely in children. The virus can be isolated from the blood clot for about a week following onset; convalescent serum should be drawn about 4 weeks after onset.

Tularemia may be transmitted by ticks but also by other means, such as infected rabbits, deer fly bites (unusual), or handling sheep. The one case in 1969 was probably contracted through a deer fly bite. The clinical manifestations of Tularemia, and serological testing need no comment. In certain instances the diagnosis can be made through fluorescent antibody staining of lymph node tissue (NCDC, Atlanta, Georgia).

Tick-bite paralysis is not a reportable disease in Montana, but a number of physicians have seen patients, usually children, with this disease. A toxin, elaborated in the salivary glands of gravid female ticks will produce an ascending flaccid paralysis, through interference with the liberation of acetylcholine at the neuromuscular junction. The severity is temporarily related to the length of time the tick remains embedded; most cases will recover rapidly following removal of the tick. If the tick is not found and removed promptly, respiratory paralysis and death may occur.

Endemic Relapsing Fever is transmitted by a "soft-shell" tick of the genus Ornithodorus, and is caused by spirochaetes of the genus Borellia. Although a large outbreak occurred in Spokane County, Washington in 1968 (J.A.M.A., Vol 210, November 10, 1969), only one suspected case, and no confirmed cases, have ever been recognized in Montana. Ticks of this genus are found in Montana, but have not been studied extensively; there is reason to suspect that this disease does occur in Montana.

Information in part from the Rocky Mountain Laboratory, NIAID, Hamilton, Montana.